

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A differential amplifier circuit comprising a latch unit and a differential input portion, wherein:

said differential input portion comprises a first transistor and a second transistor each having a first electrode, a second electrode and a control electrode;

the control electrodes of said first and second transistors are supplied with a differential input signal;

a third transistor ~~for keeping a minute current to flow through said first and second transistors~~ is inserted between a first power line and a common node to which the first electrodes of said first and second transistors are connected, said third transistor keeps a minute current flowing through said first and second transistors in response to a clock signal at a first level ~~wherein said third transistor also supplies a first drive current at the time of signal determination in said differential amplifier circuit, in response to the clock signal at a second level, said first drive current through said third transistor is larger than said minute current;~~

a fourth transistor ~~for supplying the drive current at the time of signal determination in said differential amplifier circuit~~ is inserted between said first power line and the common node to which the first electrodes of said first and second transistors are connected, said fourth transistor supplies a second drive current in response to the clock signal at the second level; and

said third transistor is connected in parallel to said fourth transistor.

2. (Canceled)

3. (Currently Amended) The differential amplifier circuit as claimed in claim 1, wherein said third transistor turns off said minute current flowing through said first and second transistors upon deactivation of a power supply to said differential amplifier circuit.

4. (Canceled)

5. (Currently Amended) The differential amplifier circuit as claimed in claim 1, wherein the control electrode of said third transistor is supplied with a first control signal, in response to the clock signal at the first level, for supplying the minute current during the operation of said differential amplifier and a second control signal, in response to the clock signal at the second level, for supplying the first drive current.

6. (Previously Presented) The differential amplifier circuit as claimed in claim 1, wherein a gate width of said third transistor is smaller than a gate width of said fourth transistor.

7. (Canceled)

8. (Currently Amended) The differential amplifier circuit as claimed in claim 1, wherein a first control signal supplied to the control electrode of said third

transistor is set to a level for supplying a ~~predetermined current~~ as the first drive current at a predetermined level in response to the clock signal at the second level~~at the time of signal determination in said differential amplifier circuit~~, while causing the minute current to flow through said first and second transistors ~~at other than the time of signal determination~~ in response to the clock signal at the first level during the operation of said differential amplifier.

9. (Original) The differential amplifier circuit as claimed in claim 1, wherein said latch unit comprises:

a first inverter inserted between the second electrode of said first transistor and a second power line; and

a second inverter inserted between the second electrode of said second transistor and said second power line, said first and second inverters being cross-coupled to each other.

10. (Currently Amended) The differential amplifier circuit as claimed in claim 9, wherein:

said differential amplifier circuit is configured of MOS transistors;

transistors of said first and second inverters which are connected to said second power line are each connected in parallel to an additional transistor, respectively; and

the second electrode of each of said first and second transistors is held at a predetermined level ~~at other than the time of signal determination~~ in response to the clock signal at the first level during the operation of said differential amplifier.

11. (Currently Amended) The differential amplifier circuit as claimed in claim 1, further comprising:

a fifth transistor connected to the second electrode of said first transistor and the second electrode of said second transistor for shorting the second electrodes of said first and second transistors in ~~accordance with a second control signal~~ response to the clock signal at the first level.

12. (Original) The differential amplifier circuit as claimed in claim 1, further comprising:

a sixth transistor connected to the second electrode of said first transistor and the second electrode of said second transistor, said sixth transistor having a control electrode supplied with a predetermined voltage.

13. (Original) The differential amplifier circuit as claimed in claim 12, wherein said differential input signal is at CML level.

14. (Currently Amended) The differential amplifier circuit as claimed in claim 1, further comprising:

a seventh transistor inserted between two nodes for retrieving a differential output signal, said seventh transistor shorting said two nodes in ~~accordance with a third control signal~~ response to the clock signal at the first level.

15. (Currently Amended) The differential amplifier circuit as claimed in claim 1, further comprising:

an eighth transistor inserted between a second power line and the common node to which the first electrodes of said first and second transistors are connected, the control electrode of said eighth transistor being supplied with ~~a fourth control signal~~ the clock signal.

16. (Original) The differential amplifier circuit as claimed in claim 1, wherein said differential amplifier circuit is a differential sense amplifier circuit of strong arm latch type.

17. (Currently Amended) A semiconductor integrated circuit device having a differential amplifier circuit receiving a differential signal, a latch circuit latching an output signal of said differential amplifier circuit, and a clock source generating a clock signal and supplying the generated clock signal to said differential amplifier circuit, wherein said differential amplifier circuit comprises a latch unit and a differential input portion, wherein:

said differential input portion comprises a first transistor and a second transistor each having a first electrode, a second electrode and a control electrode;

the control electrodes of said first and second transistors are supplied with the differential input signal;

~~a third transistor for keeping a minute current to flow through said first and second transistors~~ is inserted between a first power line and a common node to which

the first electrodes of said first and second transistors are connected, ~~wherein~~ said third transistor keeps a minute current flowing through said first and second transistors in response to the clock signal at a first level, said third transistor also supplies a first drive current at the time of signal determination in said differential amplifier circuit, in response to the clock signal at a second level, said drive current through said third transistor is larger than said minute current;

~~a fourth transistor for supplying the drive current at the time of signal determination in said differential amplifier circuit~~ is inserted between said first power line and the common node to which the first electrodes of said first and second transistors are connected, said fourth transistor supplying a second drive current in response to the clock signal at the second level; and

said third transistor is connected in parallel to said fourth transistor.

18. (Original) The semiconductor integrated circuit device as claimed in claim 17, wherein said semiconductor integrated circuit is a receiving circuit of a signal transmission system, said signal transmission system comprising a transmission circuit outputting the differential signal, a signal transmission path, and said receiving circuit receiving the differential signal through said signal transmission path.

19. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 18, wherein the receiving circuit further comprises:

an equalizer circuit coupled between the transmission circuit and the amplifier circuit, wherein the equalizer circuit receives the differential signal, ~~removing~~ removes

an Inter-Symbol Interference of the differential signal by a Partial Response Detection, and ~~outputting~~ outputs the Inter-Symbol Interference removed differential signal to said differential amplifier circuit.

20. (Previously Presented) A circuit device comprising:
- a transmission circuit outputting a differential signal;
 - a signal transmission path; and
 - a receiving circuit receiving the differential signal through said signal transmission path, wherein
 - the receiving circuit comprises a plurality of receiving units, said plurality of receiving units carrying out an interleave operation, and wherein
 - each of the plurality of receiving units comprises:
 - a differential amplifier circuit receiving an Inter-Symbol Interference removed differential signal, a latch circuit latching an output signal of said differential amplifier circuit, and a clock source generating a clock and supplying the generated clock to said differential amplifier circuit, wherein said differential amplifier circuit comprises a latch unit and a differential input portion, wherein:
 - said differential input portion comprises a first transistor and a second transistor each having a first electrode, a second electrode and a control electrode;
 - the control electrodes of said first and second transistors are supplied with the Inter-Symbol Interference removed differential input signal;
 - a third transistor for keeping a minute current to flow through said first and second transistors is inserted between a first power line and a common node to which

the first electrodes of said first and second transistors are connected, wherein said third transistor also supplies a drive current at the time of signal determination in said differential amplifier circuit; and

an equalizer circuit, receiving the differential signal, removing an Inter-Symbol Interference of the differential signal by a Partial Response Detection, and outputting the Inter-Symbol Interference removed differential signal to said differential amplifier circuit.

21. (Canceled)

22. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 17, wherein said third transistor turns off said minute current flowing through said first and second transistors upon deactivation of a power supply to said differential amplifier circuit.

23. (Canceled)

24. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 17, wherein the control electrode of said third transistor is supplied with a first control signal, in response to the clock signal at the first level, for supplying the minute current during the operation of said differential amplifier and a second control signal, in response to the clock signal at the second level, for supplying the first drive current.

25. (Previously Presented) The semiconductor integrated circuit device as claimed in claim 17, wherein a gate width of said third transistor is smaller than a gate width of said fourth transistor.

26. (Canceled)

27. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 17, wherein a first control signal supplied to the control electrode of said third transistor is set to a level for supplying ~~a predetermined current as the first drive current at the time of signal determination in said differential amplifier circuit a~~ predetermined level, in response to the clock signal at the second level, while causing the minute current to flow through said first and second transistors ~~at other than the time of signal determination~~ , in response to the clock signal at the first level, during the operation of said differential amplifier.

28. (Original) The semiconductor integrated circuit device as claimed in claim 17, wherein said latch unit comprises:

a first inverter inserted between the second electrode of said first transistor and a second power line; and

a second inverter inserted between the second electrode of said second transistor and said second power line, said first and second inverters being cross-coupled to each other.

29. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 28, wherein:

said differential amplifier circuit is configured of MOS transistors;
transistors of said first and second inverters which are connected to said second power line are each connected in parallel to an additional transistor, respectively; and
the second electrode of each of said first and second transistors is held at a predetermined level ~~at other than the time of signal determination~~ , in response to the clock signal at the first level, during the operation of said differential amplifier.

30. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 17, wherein said differential amplifier circuit further comprising:

a fifth transistor connected to the second electrode of said first transistor and the second electrode of said second transistor for shorting the second electrodes of said first and second transistors in ~~accordance with a second control signal~~ response to the clock signal at the first level.

31. (Original) The semiconductor integrated circuit device as claimed in claim 17, wherein said differential amplifier circuit further comprising:

a sixth transistor connected to the second electrode of said first transistor and the second electrode of said second transistor, said sixth transistor having a control electrode supplied with a predetermined voltage.

32. (Original) The semiconductor integrated circuit device as claimed in claim 31, wherein said differential input signal is at CML level.

33. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 17, wherein said differential amplifier circuit further comprising:

a seventh transistor inserted between two nodes for retrieving a differential output signal, said seventh transistor shorting said two nodes in ~~accordance with a third control signal~~ response to the clock signal at the first level.

34. (Currently Amended) The semiconductor integrated circuit device as claimed in claim 17, wherein said differential amplifier circuit further comprising:

an eighth transistor inserted between a second power line and the common node to which the first electrodes of said first and second transistors are connected, the control electrode of said eighth transistor being supplied with ~~a fourth control~~ the clock signal.

35. (Original) The semiconductor integrated circuit device as claimed in claim 17, wherein said differential amplifier circuit is a differential sense amplifier circuit of strong arm latch type.

36. (Previously Presented) A receiving circuit of a signal transmission system, said signal transmission system comprising a transmission circuit outputting a differential signal, a signal transmission path, and said receiving circuit receiving the

differential signal through said signal transmission path, the receiving circuit comprising a receiving unit, wherein the receiving unit comprises:

a differential amplifier circuit, said differential amplifier circuit including a latch unit and a differential input portion, wherein a minute current is kept to flow through said differential input portion;

a latch circuit latching an output signal of said differential amplifier circuit;

a clock source generating a clock and supplying the generated clock to said differential amplifier circuit; and

an equalizer circuit for receiving the differential signal, removing an Inter-Symbol Interference of the differential signal by a Partial Response Detection, and outputting the Inter-Symbol Interference removed differential signal to said differential amplifier circuit.

37. (Previously Presented) The receiving circuit of a signal transmission system as claimed in claim 36, wherein the receiving circuit further comprises at least one additional receiving unit, each additional receiving unit including said differential amplifier circuit, said latch circuit and said equalizer circuit, said receiving circuit carrying out an interleave operation.

38. (Currently Amended) A differential amplifier circuit comprising a latch unit and a differential input portion, wherein:

said differential input portion comprises a first transistor and a second transistor each having a first electrode, a second electrode and a control electrode;

the control electrodes of said first and second transistors are supplied with a differential input signal;

~~a third transistor for keeping a minute current to flow through said first and second transistors~~ is inserted between a first power line and a common node to which the first electrodes of said first and second transistors are connected, a gate electrode of said third transistor ~~receiving~~ receives a control signal of which level is changed in accordance with the operation of said differential amplifier circuit, said third transistor keeps a minute current flowing through said first and second transistors, in response to said control signal at a first level, said third transistor supplies a first drive current, in response to said control signal at a second level, said first drive current through said third transistor is larger than said minute current; and

an eighth transistor inserted between a second power line and the common node to which the first electrodes of said first and second transistors are connected, the control electrode of said eighth transistor being supplied with a ~~fourth control clock~~ signal, ~~wherein the third transistor doubles as a transistor for supplying a drive current at the time of signal determination by said differential amplifier circuit.~~

39. (Currently Amended) A semiconductor integrated circuit device having a differential amplifier circuit receiving a differential signal, a latch circuit latching an output signal of said differential amplifier circuit, and a clock source generating a clock and supplying the generated clock to said differential amplifier circuit, wherein said differential amplifier circuit comprises a latch unit and a differential input portion, wherein:

said differential input portion comprises a first transistor and a second transistor each having a first electrode, a second electrode and a control electrode;

the control electrodes of said first and second transistors are supplied with the differential input signal;

~~a third transistor for keeping a minute current to flow through said first and second transistors~~ is inserted between a first power line and a common node to which the first electrodes of said first and second transistors are connected, a gate electrode of said third transistor ~~receiving~~ receives a control signal of which level is changed in accordance with the operation of said differential amplifier circuit, said third transistor keeps a minute current flowing through said first and second transistors in response to said control signal at a first level, said third transistor supplies a first drive current in response to said control signal at a second level, said first drive current through said third transistor is larger than said minute current; and

an eighth transistor inserted between a second power line and the common node to which the first electrodes of said first and second transistors are connected, the control electrode of said eighth transistor being supplied with a ~~fourth control clock signal, wherein the third transistor doubles as a transistor for supplying a drive current at the time of signal determination by said differential amplifier circuit.~~

40. (New) A differential amplifier circuit comprising a latch unit and a differential input portion, wherein:

said differential input portion comprises a first transistor and a second transistor each having a first electrode, a second electrode and a control electrode;

the control electrodes of said first and second transistors are supplied with a differential input signal;

a third transistor is inserted between a first power line and a common node to which the first electrodes of said first and second transistors are connected, said third transistor keeps a minute current flowing through said first and second transistors, in response to a control signal at a first level, said third transistor supplies a drive current, in response to the control signal at a second level, said drive current through said third transistor is larger than said minute current.